This Page Is Inserted by IFW Operations and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS^{*}
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents will not correct images, please do not report the images to the Image Problem Mailbox.

ENTERED

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/509,482

DATE: 11/16/2000 TIME: 16:26:43

Input Set : A:\PTO.txt

Output Set: N:\CRF3\11162000\1509482.raw

```
3 <110> APPLICANT: Crofts, Linda A
             Hancock, Manuella S
             Morrison, Nigel A
             Eisman, John A
     8 <1.20> TITLE OF INVENTION: Isoforms of the Human Vitamin D Receptor
    10 <130> FILE REFERENCE: 1871-130
C--> 12 <140> CURRENT APPLICATION NUMBER: US/09/509,482
C--> 13 <141> CURRENT FILING DATE: 2000-09-15
    15 <150> PRIOR APPELCATION NUMBER: AU/PO9500
    16 <151> PRIOR FILING DATE: 1997-09-29
    18 <150> PRIOR APPLICATION NUMBER: PCT/AU98/00817
    19 <151> PRIOR FILING DATE: 1998-09-29
    21 <160> NUMBER OF SEQ ID NOS: 14
    23 <170> SOFTWARE: Patentin Ver. 2.1
    25 <210> SEQ ID NO: 1
    26 <211> LENGTH: 96
    27 <212> TYPE: DNA
    28 <213> ORGANISM: Homo sapiens
    30 <400> SEQUENCE: 1
    32 ggctgtcgat ggtgctcaga actgctggag tggagg
    35 <210> SEQ ID NO: 2
    36 <211> LENGTH: 1463
    37 <212> TYPE: DNA
    38 <213> ORGANISM: Homo sapiens
    40 <400> SEQUENCE: 2
    42 ggetgtegat ggtgeteaga aetgetggag tggaggaage etttgggtet gaagtgtetg 120
    43 tgagacetea cagaagagea eccetggget ecaettacet gececetget ectteaggga 180
    44 tggaggcaat ggcggccage acttccctgc ctgaccctgg agactttgac cggaacgtgc 240
    45 coeggatotg tggggtgtgt ggagacogag coactggott toacttoaat gotatgacot 300
    46 gtgaaggetg caaaggette tteaggegaa geatgaageg gaaggeacta tteacetgee 360
    47 cettcaacgg ggactgeege atcaccaagg acaaccgacg ceactgeeag geetgeegge 420
    48 teaaaegety tytyggacate gycatgatga aggaytteat tetgaeagat gaggaagtyc 480
    49 agaggaagey ggagatgate etgaagegga aggaggagga ggeettgaag gacagtetge 540
    50 ggcccaaget gtctgaggag cagcagegea teattgccat actgctggac gcccaccata 600
    51 agacctaega occeaectae teegacttet geeagtteeg geeteeagtt egtgtgaatg 660
    52 atggtggagg gagecateet teeaggeeea acteeagaea cacteecage ttetetgggg 720
    53 actoctocto etcetgetea gateactgta teacetette agacatgatg gactegteea 780
    54 getteteeaa tetggatetg agtgaagaag atteagatga eeettetgtg accetagage 840
    55 tytoccaget etecatgety ecceacetyy etyacetyyt cayttacage atecaaaagy 900
    56 teatingent including ataccaggat teagagaest cacciteting gascagateg 960
    57 tactgctgaa gtcaagtgcc attgaggtca toatgttgcg ctccaatgag tccttcacca 1020
    58 tggacgacat gtcctggacc tgtggcaacc aagactacaa gtaccgcgtc agtgacgtga 1080
    59 ccaaageegg acaeageetg gagetyattg ageeeeteat caagtteeag gtgggaetga 1140
    60 agaagetgaa ettgeatgag gaggageatg teetgeteat ggeeatetge ategteteee 1200
    61 cagategtee tggggtgeag gaegeegege tgattgagge catecaggae egeetgteea 1260
```

RAW SEQUENCE LISTING DATE: 11/16/2000 PATENT APPLICATION: US/09/509,482 TIME: 16:26:43

Input Set : A:\PTO.txt

Output Set: N:\CRF3\11162000\1509482.raw

```
62 acacactyca gacgtacate cyctyceyec accegeece gygcageeac etyctetaty 1320
63 ccaagatgat ccagaagcta gccgacctgc gcagcctcaa tgaggagcac tccaagcagt 1380
64 acception theoretical confidence of the second s
65 tgtttggcaa tgagatetee tga
68 <210> SEQ ID NO: 3
69 <211> LENGTH: 1382
70 <212> TYPE: DNA
71 <213> ORGANISM: Homo sapiens
73 <400> SEQUENCE: 3
75 gyotytogat gytyotoaga actyctygag tygagygyat ggagycaaty gogyccayca 120
76 ottooctgoc tgaecetgga gactttgace ggaacgtgce eeggatetgt ggggtgtgtg 180
77 gagacegage cactggettt cactteaty ctatgacety tyanggetge anaggettet 240
78 teaggegaag catgaagegg aaggeactat teacetgeec etteaaeggg gaetgeegea 300
79 teaccaagga caacegaoge cactgocagg cetgeegget caaacgetgt gtggacateg 360
80 gcatgatgaa gqagttcatt ctgacagatg aggaagtgca gaggaagcgg gagatgatcc 420
81 tgaageggaa ggaggaggag geettgaagg acagtetgeg geecaagetg tetgaggage 480
82 ageagegeat cattgecata ctgetggaeg eccaccataa gaectacgae eccacctact 540
83 ocgaettetg coagttoogg cotocaytto ytgtgaatga tggtggaggy agcoatcott 600
84 ccaggeccaa etecagacae acteccayet tetetgggga etectectee teetgeteag 660
85 atcactytat cacctettea gacatgatgg actegtecag ettetecaat etggatetga 720
86 gtgaagaaga ttcagatgac cottotgtga coctagaget gtcccagete tccatgetge 780
87 cccacctggc tgacctggtc agttacagca tccaaaaggt cattggcttt gctaagatga 840
88 taccaggatt cagagacete acetetgagg accagategt aetgetgaag teaagtgeca 900
89 ttgaggtcat catgttgcgc tccaatgagt cettcaccat ggacgacatg tcctggacct 960
90 gtggcaacca agactacaag taccgcgtea gtgacgtgac caaagccgga cacagcctgg 1020
91 agetgattga gececteate aagtteeaqq tqqqactqaa qaagetqaac ttqeatgaqq 1080
92 aggageatgt cetgeteatg gecatetgea tegteteece agategteet ggggtgeagg 1140
93 acgccgcgct gattgaggcc atccaggacc gcctgtccaa cacactgcag acgtacatcc 1200
94 getgeegeea eeegeeeeeg ggeageeaee tgetetatge caagatgate cagaagetag 1260
95 ocgaectgeg cagecteaat gaggageact ceaageagta eegetgeete teetteeage 1320
96 etgagtgeag catgaageta aegeceettg tgetegaagt gtittggeaat gagateteet 1380
97 ga
                                                                                                                 1382
100 <210> SEQ ID NO: 4
101 <211> LENGTH: 1534
102 <212> TYPE: DNA
103 <213> ORGANISM: Homo sapiens
105 <400> SEQUENCE: 4
107 ggctgtcgat ggtgctcaga actgctggag tggaggggat ggaggcaatg geggccagca 120
108 cttccctgcc tgaccctgga gactttgacc ggaacgtgcc ccggatctgt ggggtgtgtg 180
109\ \mathsf{gagaccgagc}\ \mathsf{cactggcttt}\ \mathsf{cacttcaatg}\ \mathsf{ctatgacctg}\ \mathsf{tgaaggctgc}\ \mathsf{aaaggcttct}\ \mathsf{240}
110 teaggtgage eccetteea ggeteteece agtggaaagg gagggagaag aagcaaggtg 300
111 tttccatgaa gggagccctt gcatttttca catctccttc cttacaatgt ccatggaaca 360
112 tgeggegete acagecacag gageaggagg gtettggega ageatgaage ggaaggeaet 420
113 atteacetge ccetteaacg gggactgeeg cateaceaag gacaacegae gccaetgeea 480
114 ggcctgccgg ctcaaacgct gtgtggacat cggcatgatg aaggagttca ttctgacaga 540
1.15 tgaggaagty cagaggaage gggagatgat cetgaagegg aaggaggagg aggeettgaa 600
116 ggacaqtety eggeecaage tytetqaqqa qeageaqege ateattqeea tactqetqqa 660
```

DATE: 11/16/2000 TIME: 16:26:43 RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/509,482

Input Set : A:\PTO.txt
Output Set: N:\CRF3\11162000\I509482.raw

117	cgcccaccat aagacctacg	accccaccta	ctccgacttc	tgccagttcc	ggcctccagt	720								
11.8	tegtgtgaat gatggtggag	ggagecatec	ttccaggccc	aactccagac	acactcccag	780								
119	cttctctggg gactcctcct	ceteetgete	agatcactgt	atcacctctt	cagacatgat	840								
120	ggactcgtcc agcttctcca	atctggatct	gagtgaagaa	gattcagatg	accettetgt	900								
	gaccetagag etgteecage													
122	catccaaaag gtcattggct	ttgctaagat	gataccagga	ttcagagacc	teacetetga	1020								
123	ggaccagate gtactgctga	agtcaagtgc	cattgaggtc	atcatgttgc	gctccaatga	1080								
124	gteetteace atggacgaca	tgtcctggac	ctgtggcaac	caagactaca	agtaccgcgt	11.40								
125	cagtgacgtg accaaagccg	gacacageet	ggagetgatt	gagecectea	tcaagttcca	1200								
126	ggtgggactg aagaagctga	acttgcatga	ggaggagcat	gtectgetea	tggccatctg	1260								
127	categictee ecagategic	ctggggtgca	ggacgccgcg	ctgattgagg	ccatccagga	1320								
128	cogcotytee aacacactge	agacgtacat	cogatgeage	caccegeeee	cgggcagcca	1380								
129	cctgctctat gccaagatga	tecagaaget	agecgaeetg	cgcagectca	atgaggagca	1440								
1.30	ctccaagcag taccgctgcc	teteetteea	gcctgagtyc	agcatgaage	taacgcccct	1500								
131	tgtgctcgaa gtgtttggca	atgagatete	ctga			1534								
134	<210> SEQ ID NO: 5													
135	<211> LENGTH: 207													
136	<212> TYPE: DNA													
1.37	<213> ORGANISM: Homo s	sapiens												
139	<400> SEQUENCE: 5													
140	tgcgaccttg gcggtgagcc	tggggacagg	ggtgaggcca	gagacggacg	gacgcagggg	60								
141	cccggcccaa ggcgagggag	aacagcggca	ctaaggcaga	aaggaagagg	geggtgtgtt	1.20								
142	caecegeage ccaatecate	actcagcaac	tectagacge	tggtagaaag	ttcctccgag	1.80								
143	gagectgcca tecagtegtg	cgtgcag				207								
146	<210> SEQ ID NO: 6													
147	<211> LENGTH: 157													
1.48	<212> TYPE: DNA													
1.49	<213> ORGANISM: Homo sapiens													
151	<400> SEQUENCE: 6													
152	aggcagcatg aaacagtggg	atgtgcagag	agaagatetg	ggt.ccagt.ag	ctctgacact	60								
	cetcagetgt agaaacettg													
154	tactcttcat gtctgaaaag	gctatgataa	agatcaa			157								
157	<210> SEQ ID NO: 7													
158	<211> LENGTH: 1574													
159	<212> TYPE: DNA													
1.60	<213> ORGANISM: Homo s	api.ens												
162	<400> SEQUENCE: 7													
163	tgcgaccttg gcggtgagcc	tggggacagg	ggtgaggcca	gagacggacg	gacgcagggg	60								
	cccggcccaa ggcgagggag													
	caccegeage ccaatecate													
166	gageetgeea tecagtegtg	cgtgcagaag	cctttqqqtc	tgaagtgtct	gtgagacctc	240								
	acagaagage acceetggge													
	tggeggeeag caetteeetg		-											
	gigggigtg tggagaccga													
	gcaaaggett etteaggega													
	gggactgeeg catcaccaag													
	gtgtggacat eggeatgatg				-									
	gggagatgat cctgaagegg				4- a- 1-									
	tgtctgagga gcagcagcgc													
		-			-									

RAW SEQUENCE LISTING DATE: 11/16/2000 PATENT APPLICATION: US/09/509,482 TIME: 16:26:43

Input Set : A:\PTO.txt

Output Set: N:\CRF3\11162000\I509482.raw

```
175 accecaceta etecgaette tgccagttee ggeetecagt tegtgtgaat gatggtggag 780
176 ggagecated the aggeed acted agad acated cag of the total ggage test et 840
177 cotoctycte agateactyt ateacetett eagacatyat gyacteytee agetteteea 900
178 atotgqatet gagtgaagaa gatteagatg accettetgt gaccetagag etgteecage 960
179 totocatgot goodcacetg gotgacetgg toagttacag catecaaaag gtoattggot 1020
180 ttgctaagat gataccagga ttcagagacc tcacctctga ggaccagatc gtactgctga 1080
181 agteaagtge cattgaggte ateatgttge getecaatga gteetteace atggaegaea 1140
182 tgtectggae etgtggeaac caagactaca agtacegegt cagtgaegtg accaaageeg 1200
183 gacacageet ggagetgatt gageeeetea teaagtteea ggtgggaetg aagaagetga 1260
184 acttgeatga ggaggageat gteetgetea tggeeatetg eategtetee eeagategte 1320
185 otggggtgca ggaegeegeg etgattgagg ccatecagga eegeetgtee aacacaetge 1380
186 agaogtacat eegetgeege eaceogeece egggeageea eetgetetat gecaagatga 1440
187 tecagaaget ageegacetg egeageetea atgaggagea etecaaqeag tacegetgee 1500
188 teteetteea geetgagtge ageatgaage taacgeeeet tgtgetegaa gtgtttggea 1560
189 atgagatete etga
192 <210> SEQ ID NO: 8
193 <211> LENGTH: 122
194 <212> TYPE: DNA
195 <213> ORGANISM: Homo sapiens
197 <400> SEQUENCE: 8
198 ggeteetgaa eetageeeag etigaaeggag aaatggacte tageeteete tgatageete 60
199 atgocaggod cogtgoadat tgotttigett godtocotea atdotoatag ottototttg 120
200 gg
203 <210> SEQ ID NO: 9
204 <211> LENGTH: 477
205 <212> TYPE: PRT
206 <213> ORGANISM: Homo sapiens
208 <400> SEQUENCE: 9
209 Met Glu Trp Arg Asn Lys Lys Arg Ser Asp Trp Leu Ser Met Val Leu
21.0 1
212 Arg Thr Ala Gly Val Glu Glu Ala Phe Gly Ser Glu Val Ser Val Arg 213 \phantom{\bigg|}20\phantom{\bigg|}25\phantom{\bigg|}30\phantom{\bigg|}
215 Pro His Arg Arg Ala Pro Leu Gly Ser Thr Tyr Leu Pro Pro Ala Pro
216 35
                                40
218 Ser Gly Met Glu Ala Met Ala Ala Ser Thr Ser Leu Pro Asp Pro Gly
219 50
                         55
224 Ala Thr Gly Phe His Phe Asn Ala Met Thr Cys Glu Gly Cys Lys Gly 225 85 90 95
227 Phe Phe Arg Arg Ser Met Lys Arg Lys Ala Leu Phe Thr Cys Pro Phe 228 \phantom{\bigg|}100\phantom{\bigg|}
230 Asn Gly Asp Cys Arg Ile Thr Lys Asp Asn Arg Arg His Cys Gln Ala
231 115
                       120
233 Cys Arg Leu Lys Arg Cys Val Asp Ile Gly Met Met Lys Glu Phe Ile
                        1.35
234 130
                                           140
236 Leu Thr Asp Glu Glu Val Gln Arg Lys Arg Glu Met Ile Leu Lys Arg
237 145
                       150
                                           155
239 Lys Glu Glu Glu Ala Leu Lys Asp Ser Leu Arg Pro Lys Leu Ser Glu
```

DATE: 11/16/2000 TIME: 16:26:43 RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/509,482

Input Set : A:\PTO.txt
Output Set: N:\CRF3\11162000\I509482.raw

	240					165					170					175		
	242	Glu	Gln	Gln	Arg	Ile	Tle	Al.a	Tle	Leu	Leu	Asp	Ala	His	His	Lys	Th.c	
	243				180					185					190			
		Tyr	Asp		Thr	Tyr	Ser	Asp		Cys	Gln	Phe	Arg		Pro	Val	Arg	
	246			195					300					205				
		Val			Cly	Gly	GLy	ser		1, ro	ser	Arg		Asn	ser	Arg	His	
	249		210					2.1.5	-				220					
			Pro	Ser	Phe	Ser	_	Asp	Ser.	ser	Ser		Cys	Ser	Asp	His		
		225					230			_		235					240	
		rre	Thr	ser	ser	••		Met	Asp	ser		ser	Phe	ser	Asn		Asp	
	255		~	2.2	a 1	245	1		1		250	34. 3	ml	_	G (2)	255	_	
	257	Leu	ser	GLU		Asp	ser	Asp	Asp			va i	Thr		270	Leu	ser	
		21.	T		260	T	D-0-0	77.5		265						o	T 1 -	
	261	6.111	ren	275	met	Leu	PIO	His	280	A J. d	Asp	ried	V ct.1,	285	TYL	5e I.	11.6	
		Cln	tue		110	Clir	Dho	Ala		Mat	Tlo	Dro	C1 v		λκα	Acn	Lou	
	264	OTI	290	VUI	1.1.6	G I. y	FIIC	295	цуэ	MC C	.13. 93		300	rne	HIG	Mah	neu	
		Thr		Glu	Δen	Gln	rle	Val	T. can	T.ou	Lve	Ser	-	Δla	Tla	c.l.ii	Val	
	267		JUL	OIU	шър	OIN	31.0	vu i	DC.G	шен	11 0	31.5	OCI	AIU	110	0111	320	
			Met.	Leu	Ara	Ser		Glu	Ser	Phe	Thr		Asp	Asp	Met	Ser		
	270				,	325					330					335		
		Thr	Cys	Glv	Asn		Asp	Tyr	Lvs	Tvr		Val	ser	Asp	Val		Lvs	
	273		-		340		•			345	,		-		350			
	275	Ala	Gly	His	Ser	Leu	Glu	Leu	Ile	Glu	Pro	Leu	lle	Lys	Phe	Gln	Val	
	276			355					360					365				
	278	G1y	Leu	Lys	Lys	Leu	Asn	Leu	His	Glu	G1u	Glu	His	Val	Leu	Leu	Met.	
	279		370					375					380					
	281	Ala	He	Cys	I l.e	Va.l		Pro	Asp	Arg	Pro	-	Va.l.	Gln	Asp	A.l.a	Ala	
	282						390					395					400	
		Leu	Ile	Glu	Ala		Gln	Asp	-	Leu		Asn	Thr	Leu	Gln		Tyr	
	285		_		_	405	_	_ 1		7	410				_	415	_	
		He	Arg	Cys	-	His	Pro	Pro	P.ro		se.r	H 1.S	Leu	Leu	_	A.l a	Lys	
	288	15 4-	71 A	22 T ==	420	T			T	425				G.1	430		C1	
	291	мес	116	435	Lys	теп	Ald	Asp	1.eu	Arg	ser	Leu	ASII	445	GLU	HIS	ser	
		forc	Cln		Ara	Cuc	F OU	ser			Dro	Clu	Cvrc		Mot	Larca	Tou	
	294	шуз	450	1 y 1	ALG	CYS	mestr	455	rne	01.11	FIO	G I. U	460	5e1.	rie i.	nys	Lieu	
		Thr		T.eu	Va 1	T.eu	GЪн	Val	Phe	Clv	Agn	C1 n		Ser				
	297		110	Dea	, ,	шеч	470	0 1	1 110	U.L.	71371	475	110	JUI.				
		<21.0)> SE	O TE	NO:	10												
		<213																
		<21.2																
		04 <213> ORGANISM:					Homo sapiens											
306 <400> SEQUENCE:																		
	307	Met	Glu	Trp	Arg	Asn	Lys	Lys	Arg	Ser	Asp	Trp	Leu	Ser	Met	va.L	Leu	
	308	1			_	5	-		-		1.0	-				15		
	310	Arg	Thr	Ala	Gly	Val	Glu	Gly	Met	Glu	Ala	Met	Ala	Ala	Ser	Th.r	Ser	
	31,1				20					25					30			
	3.13	Val	Cys	Gly	Asp	Arg	Ala	Thr	Gly	Phe	Hi.s	Phe	Asn	Ala	Met	Thr	Cys	

DATE: 11/16/2000 TIME: 16:26:44 VERIFICATION SUMMARY PATENT APPLICATION: US/09/509,482

Input Set : A:\PTO.txt
Output Set: N:\CRF3\11162000\I509482.raw

 $\text{L}:12\ \text{M}:270\ \text{C}:$ Current Application Number differs, Replaced Application Number L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date